Work Order ID 103689 *103689*

June-24-13 2:11:59 PM

Item ID: D3646-1 **Accept** *N900040100* **Setup Start** *NS1* **Stop** *NS2*

Revision ID:

Item Name: Arm

Start Date: 6/24/13 **Start Qty:** 6.00 *6* **Cust Item ID:**

Required Date: 7/05/13 **Req'd Qty:** 6.00 *6* **Customer:**

Reference:

Run Start *NR1* **Stop** *NR2*

Approvals: **Process Plan:** MLS **Date:** 13-06-25 **Tooling:** ________ **Date:** ________

QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D3646	Rev C

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
100 *100* Brake NC Brake NC	NC BRAKE **Memo** 1-Punch to length as per Dwg D3646 & template DT8958 24.8	0.00 0.00				6	SAD	13-10-28	
110 *110* Small Fab Small Fab	Small Fab **Memo** 1-Deburr	0.00 0.00				6	SAD	13-10-28	
120 *120* QC Quality Control	QC5- Inspect part completeness to step on W/O **Memo**	0.00 0.00	DAS 27 9-89 13 10 29			6			

DQA: ________ Date: ________

WORK ORDER NON-CONFORMANCE / UPDATE

DART AEROSPACE

QA Closed: Date:

Work Order update only ☐

Work Order: ________________

Part No. ________________

NCR No. ________________

DISPOSITION

- Rework ☐
- Scrap ☐
- Use-as-is ☐
- Suspected Unapproved ☐

AGAINST DEPARTMENT/PROCESS

Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐
Machining ☐	Small Fab ☐	Prod. Eng. Coor. ☐	Quality ☐
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
Large Fab ☐	Composite ☐	Supplier ☐	☐

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design ☐									
Doc/Data ☐									
Equip/Tooling ☐									
Handling/Pre ☐									
Material ☐									
Operator ☐									
Offset/Setup ☐									
Process ☐									
Supplier ☐									
Training ☐									
Transport ☐									
Unapproved ☐									

FAULT CATEGORY

Landing Gear	General			
☐ Bending	☐ Bend	☐ Folio/Program	☐ Outside Dimensions	☐ Pressure/Forced
☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance	☐ Set-up
☐ Cracks	☐ Broken/Damage/Defect	☐ Hardware	☐ Part Incorrect	☐ Temperature/Cure
☐ Crimp/Kink/Ripple/Wave	☐ Burrs	☐ Inspection Incomplete/Unqualified	☐ Part Lost/Missing	☐ Weld
☐ Cuffs	☐ Contamination	☐ Instructions Incomplete/Unclear	☐ Part Moved	☐ Wrong Stock Pulled
☐ Crushing	☐ Countersink	☐ Misaligned/off center	☐ Positioned Wrong	
☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Power Loss/Surge	☐ Other
☐ Inspection Strip in Tube	☐ Drawing	☐ Misread		
☐ Marks/Chatter	☐ Drill Holes	☐ Off-set		
☐ Turning Sequence	☐ Finish	☐ Out of Calibration		
☐ Wave/Twist in Tube	☐ Fit/Function	☐ Out of Sequence		

Work Order ID 103689 *103689*

June-24-13 2:11:59 PM

Item ID: D3646-1

Accept *N900040100*

Setup Start *NS1*

Revision ID:

Item Name: Arm

Stop *NS2*

Start Date: 6/24/13 **Start Qty:** 6.00 *6*

Cust Item ID:

Required Date: 7/05/13 **Req'd Qty:** 6.00 *6*

Customer:

Reference:

Run Start *NR1*

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______

QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* Powdercoat Powder Coating	Black Sandtex(Ref:4.3.5.7) per QSI005 4.3 M 117338 **Memo** START TIME: 2:15 OVEN TEMPERATURE: 390° FINISH TIME: 2:45	0.00 0.00				6	Ø	B-10-29	DAS 34 9-89
140 *140* QC Quality Control	QC3- Inspect Part Finish **Memo**	0.00 0.00 DAS 27 9-89 B 10 30				6			
150 *150* Packaging Packaging	Identify as per dwg & Stock Location: ST227 **Memo**	0.00 0.00				6X	DAS 28 9-89	13-10-30	

DQA: ______ Date: ______

WORK ORDER NON-CONFORMANCE / UPDATE

DART AEROSPACE

QA Closed: Date:

Work Order update only ☐

Work Order: ______

Part No. ______

NCR No. ______

DISPOSITION

Rework ☐
Scrap ☐
Use-as-is ☐
Suspected Unapproved ☐

AGAINST DEPARTMENT/PROCESS

Skid-tube ☐ Crosstube ☐ Water Jet ☐ Engineering ☐
Machining ☐ Small Fab ☐ Prod. Eng. Coor. ☐ Quality ☐
Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐
Large Fab ☐ Composite ☐ Supplier ☐ ☐

Root Cause		Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design	☐									
Doc/Data	☐									
Equip/Tooling	☐									
Handling/Pre	☐									
Material	☐									
Operator	☐									
Offset/Setup	☐									
Process	☐									
Supplier	☐									
Training	☐									
Transport	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear

- ☐ Bending
- ☐ Centre Not Concentric
- ☐ Cracks
- ☐ Crimp/Kink/Ripple/Wave
- ☐ Cuffs
- ☐ Crushing
- ☐ Heat Treat
- ☐ Inspection Strip in Tube
- ☐ Marks/Chatter
- ☐ Turning Sequence
- ☐ Wave/Twist in Tube

General

- ☐ Bend
- ☐ BOM/Route
- ☐ Broken/Damage/Defect
- ☐ Burrs
- ☐ Contamination
- ☐ Countersink
- ☐ Cut Too Short
- ☐ Drawing
- ☐ Drill Holes
- ☐ Finish
- ☐ Fit/Function
- ☐ Folio/Program
- ☐ Grain
- ☐ Hardware
- ☐ Inspection Incomplete/Unqualified
- ☐ Instructions Incomplete/Unclear
- ☐ Misaligned/off center
- ☐ Mislabeled
- ☐ Misread
- ☐ Off-set
- ☐ Out of Calibration
- ☐ Out of Sequence
- ☐ Outside Dimensions
- ☐ Over/Under tolerance
- ☐ Part Incorrect
- ☐ Part Lost/Missing
- ☐ Part Moved
- ☐ Positioned Wrong
- ☐ Power Loss/Surge
- ☐ Pressure/Forced
- ☐ Set-up
- ☐ Temperature/Cure
- ☐ Weld
- ☐ Wrong Stock Pulled
- ☐ Other ______

Work Order ID 103689 *103689*

June-24-13 2:11:59 PM

Item ID:	D3646-1		**Accept**	*N900040100*	**Setup** **Start** *NS1*
Revision ID:					**Stop** *NS2*
Item Name:	Arm				
Start Date:	6/24/13	**Start Qty:** 6.00	*6*	**Cust Item ID:**	
Required Date:	7/05/13	**Req'd Qty:** 6.00	*6*	**Customer:**	
Reference:					

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______ **Run** **Start** *NR1*

QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 *160*	QC21- Final Inspection - Work Order Release	0.00				13/10/31			
QC Quality Control	**Memo**	0.00							MF 13-10-30

DQA: ________ Date: ________

QA Closed: Date:

WORK ORDER NON-CONFORMANCE / UPDATE

DART AEROSPACE

Work Order update only ☐

Work Order: ____________

Part No. ____________

NCR No. ____________

DISPOSITION

Rework ☐
Scrap ☐
Use-as-is ☐
Suspected Unapproved ☐

AGAINST DEPARTMENT/PROCESS

Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐
Machining ☐	Small Fab ☐	Prod. Eng. Coor. ☐	Quality ☐
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
Large Fab ☐	Composite ☐	Supplier ☐	☐

Root Cause		Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design	☐									
Doc/Data	☐									
Equip/Tooling	☐									
Handling/Pre	☐									
Material	☐									
Operator	☐									
Offset/Setup	☐									
Process	☐									
Supplier	☐									
Training	☐									
Transport	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear

☐ Bending
☐ Centre Not Concentric
☐ Cracks
☐ Crimp/Kink/Ripple/Wave
☐ Cuffs
☐ Crushing
☐ Heat Treat
☐ Inspection Strip in Tube
☐ Marks/Chatter
☐ Turning Sequence
☐ Wave/Twist in Tube

General

☐ Bend
☐ BOM/Route
☐ Broken/Damage/Defect
☐ Burrs
☐ Contamination
☐ Countersink
☐ Cut Too Short
☐ Drawing
☐ Drill Holes
☐ Finish
☐ Fit/Function

☐ Folio/Program
☐ Grain
☐ Hardware
☐ Inspection Incomplete/Unqualified
☐ Instructions Incomplete/Unclear
☐ Misaligned/off center
☐ Mislabeled
☐ Misread
☐ Off-set
☐ Out of Calibration
☐ Out of Sequence

☐ Outside Dimensions
☐ Over/Under tolerance
☐ Part Incorrect
☐ Part Lost/Missing
☐ Part Moved
☐ Positioned Wrong
☐ Power Loss/Surge

☐ Pressure/Forced
☐ Set-up
☐ Temperature/Cure
☐ Weld
☐ Wrong Stock Pulled

☐ Other ____________

Picklist Print

June-24-13 2:11:59 PM

T

Work Order ID: 103689

Parent Item: D3646-1

Parent Item Name: Arm

Start Date: 6/24/13

Start Qty: 6.00

Required Date: 7/05/13

Required Qty: 6.00

Comments: IPP Rev. A new issue 07.07.25 EC verified by:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304TR0.500W.035 304 RD Tube .500 x .035W		Purchased	No			100	f	533.5882	**1.98**	**12.505263** SAD 13/10/28			

Location	Loc Qty	Loc Code	
MAT017	533.58823		
118702	0.00003		
123303	148.9645		
125513	384.6237	M26922	12.5053

DQA: ________ Date: ________

WORK ORDER NON-CONFORMANCE / UPDATE

DART AEROSPACE

QA Closed: Date:

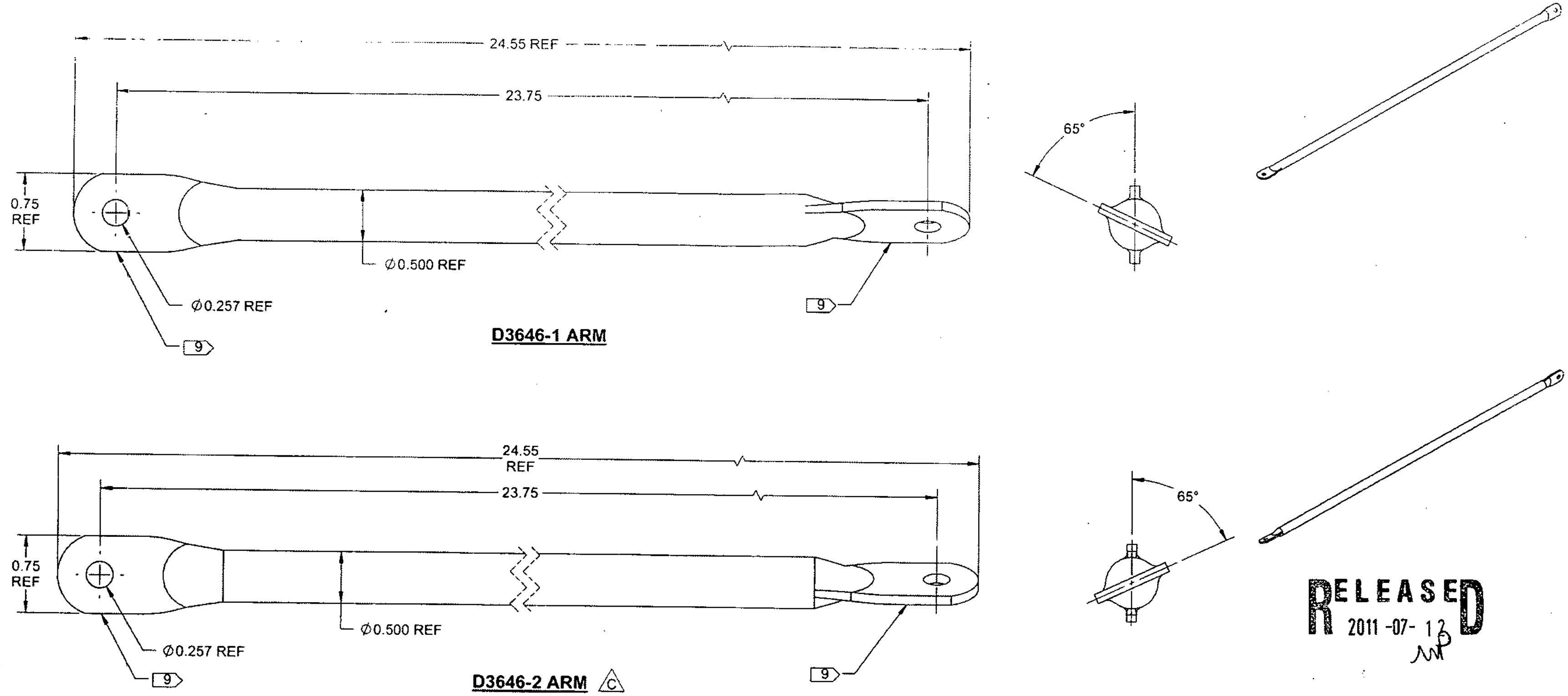
Work Order update only ☐

Work Order: ________ Part No. ________ NCR No. ________	**DISPOSITION**	**AGAINST DEPARTMENT/PROCESS**			
	Rework ☐	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐
	Scrap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coor. ☐	Quality ☐
	Use-as-is ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
	Suspected Unapproved ☐	Large Fab ☐	Composite ☐	Supplier ☐	☐

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design ☐									
Doc/Data ☐									
Equip/Tooling ☐									
Handling/Pre ☐									
Material ☐									
Operator ☐									
Offset/Setup ☐									
Process ☐									
Supplier ☐									
Training ☐									
Transport ☐									
Unapproved ☐									

FAULT CATEGORY

Landing Gear	General			
☐ Bending	☐ Bend	☐ Folio/Program	☐ Outside Dimensions	☐ Pressure/Forced
☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance	☐ Set-up
☐ Cracks	☐ Broken/Damage/Defect	☐ Hardware	☐ Part Incorrect	☐ Temperature/Cure
☐ Crimp/Kink/Ripple/Wave	☐ Burrs	☐ Inspection Incomplete/Unqualified	☐ Part Lost/Missing	☐ Weld
☐ Cuffs	☐ Contamination	☐ Instructions Incomplete/Unclear	☐ Part Moved	☐ Wrong Stock Pulled
☐ Crushing	☐ Countersink	☐ Misaligned/off center	☐ Positioned Wrong	
☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Power Loss/Surge	☐ Other
☐ Inspection Strip in Tube	☐ Drawing	☐ Misread		
☐ Marks/Chatter	☐ Drill Holes	☐ Off-set		
☐ Turning Sequence	☐ Finish	☐ Out of Calibration		
☐ Wave/Twist in Tube	☐ Fit/Function	☐ Out of Sequence		



RELEASED
2011 -07- 12

SHOP COPY
RETURN TO
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UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 103689 MC
13-06-25

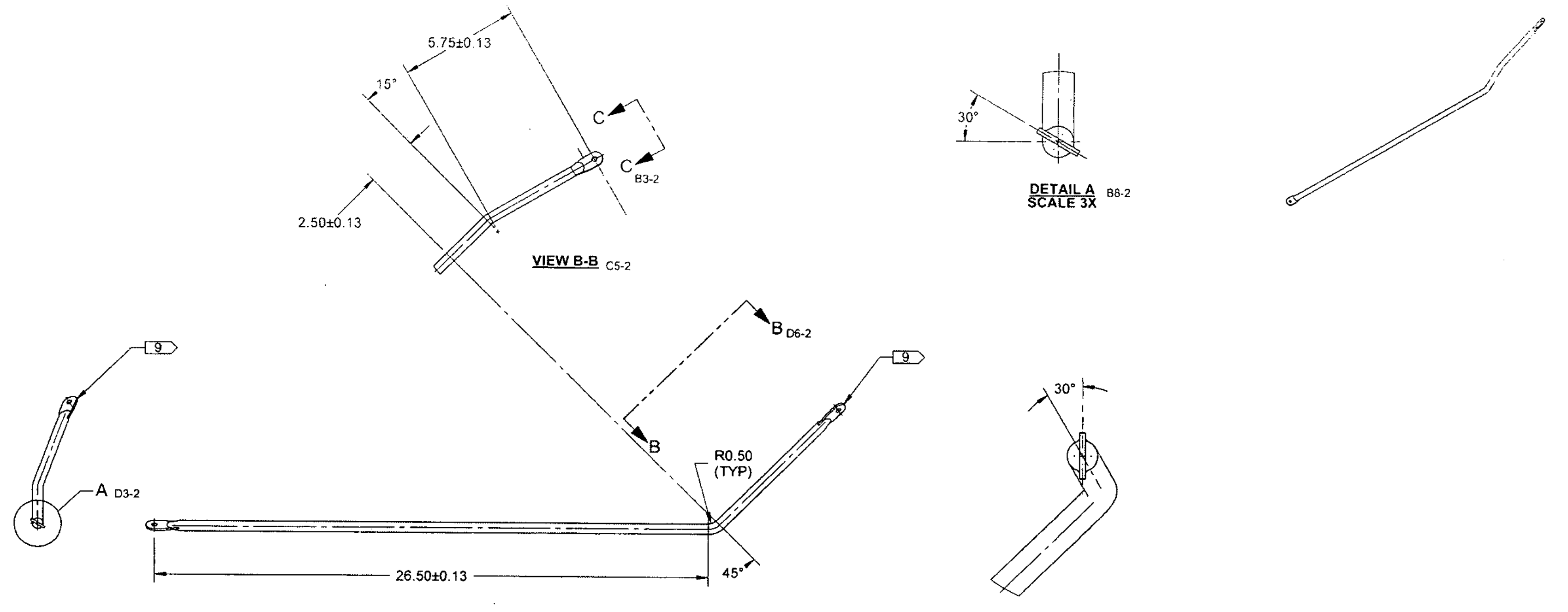
NOTES:
1) MATERIAL: AISI 304/316 SS TUBE Ø0.500 X 0.035 WALL PER ASTM A213/A269 OR ASME A213 (REF DART SPEC. M304TR0500W.035)
2) FINISH: POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3646-X" AND B/N "BXXXXX" PER DART QSI 044 6.1 USING REMOVABLE TAG
7) WEIGHT: 0.38 lbs
8) DELETED AT REV. C
9) PUNCH BOTH ENDS PER SPEC CONTROL DWG D2727

REV.	DESCRIPTION	BY	DATE
C	ADD-2 & -4 FOR LHS INSTALLATION. DELETE REFERENCES TO TEMPLATES (NOTE 8) PER SHOP REQUEST.	AJS	11.07.11
B	REFORMAT DWG, ANGLE 65° WAS 45° (ZN C3-1), ADD IDENTIFICATION TAG (ZN A8-1, A8-2)	CP	09.06.04
A	NEW ISSUE	MB	07.06.06

DESIGN	MB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	[signature]	DRAWING NO.	REV. C
MFG. APPR.	[signature]	D3646	SHEET 1 OF 3
APPROVED	[signature]	TITLE	SCALE
DE APPR.	[signature]	ARM	NTS
DATE	11.07.11		

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103689



D3646-3 ARM

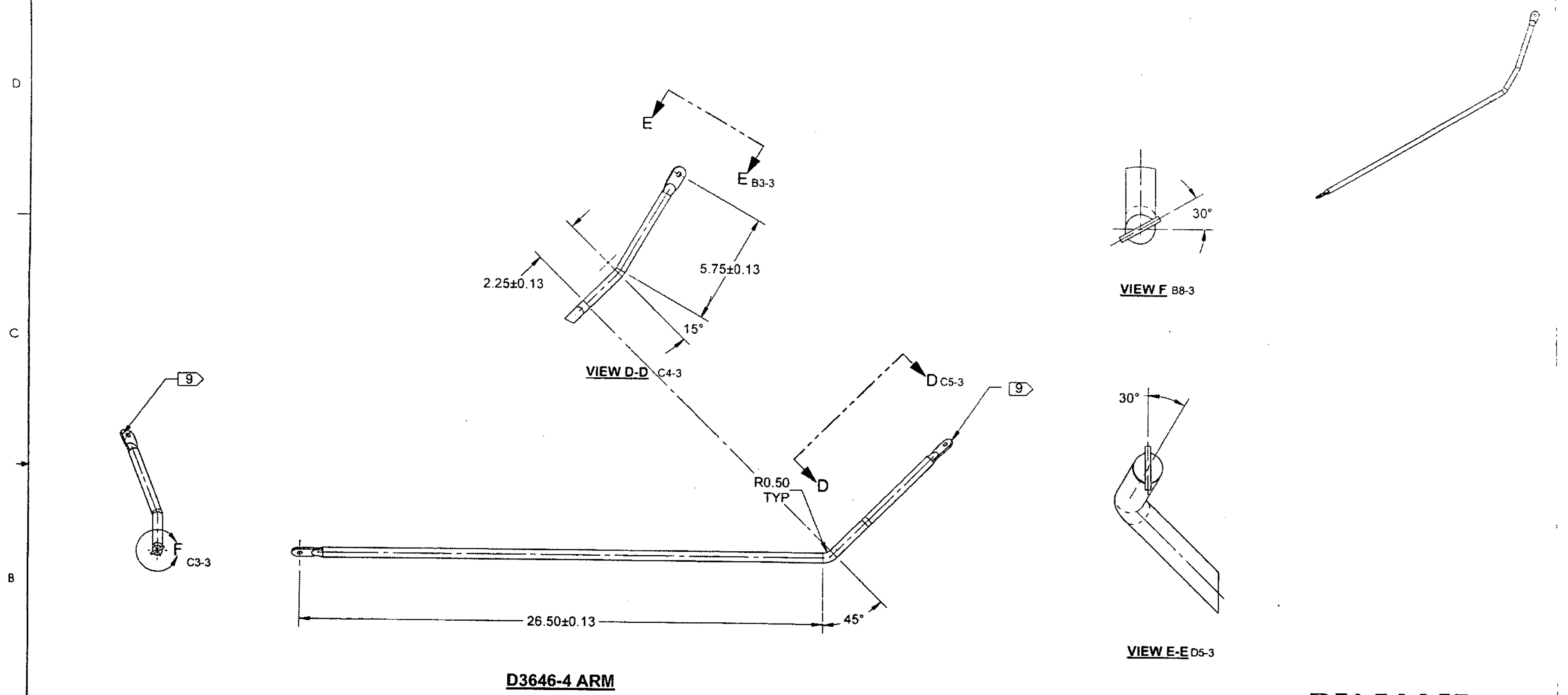
RELEASED 2011-07-13

NOTES:
1) MATERIAL: AISI 304/316 SS TUBE ∅0.500 X 0.035 WALL PER ASTM A213/A269 OR ASME A213 (REF DART SPEC. M304TR0500W.035)
2) FINISH: POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3646-3" AND B/N "BXXXXX" PER DART QSI 044 6.1 USING REMOVABLE TAG
7) WEIGHT: 0.57 lbs
8) DELETED AT REV C. △C
9) PUNCH BOTH ENDS PER SPEC CONTROL DWG D2727

DESIGN	MB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	AJS	
CHECKED	[signature]	DRAWING NO. D3646 — REV. C — SHEET 2 OF 3
MFG. APPR.	[signature]	
APPROVED	[signature]	TITLE ARM — SCALE NTS
DE APPR.	[signature]	
DATE	11.07.11	

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103689



RELEASED 2011-07-12

NOTES:
1) MATERIAL: AISI 304/316 SS TUBE ∅0.500 X 0.035 WALL PER ASTM A213/A269 OR ASME A213
(REF DART SPEC. M304TR0500W.035)
2) FINISH: POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3646-4" AND B/N "BXXXXX"
PER DART QSI 044 6.1 USING REMOVABLE TAG
7) WEIGHT: 0.57 lbs
8) DELETED AT REV C. (C)
9) PUNCH BOTH ENDS PER SPEC CONTROL DWG D2727

DESIGN	MB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	AJS	
CHECKED	[signature]	DRAWING NO. D3646 — REV. C — SHEET 3 OF 3
MFG. APPR.	[signature]	
APPROVED	[signature]	TITLE ARM — SCALE NTS
DE APPR.	[signature]	
DATE	11.07.11	

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DART AEROSPACE LTD

Description: ARM		Work Order: 103689
Inspection Drawing: D3646-1	Rev: C	Part Number: D3646-1

INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
24.55	+/-0.030	24.55	✓		M-T	SAO-1
23.75	+/-0.030	23.75	✓		M-T	SAO-1
6.257	+0.066 -0.001	6.257	✓		Vern	SFab-08
65°	+/- 1/2	65°	✓		Angel Level	SFab-05
0.75	+/-0.030	0.75	✓		Vern	SFab-08

Measured by: SAM	Checked By: SA	QC inspector: DAS 27 9-89	Engineering Approval (*if necessary*):
Date 13-10-28	Date 13/10/29	Date 13 10 29	Date